January 24, 2005
REV. March 4, 2005

Tennessee Department of Transportation
Division of Materials and Tests

Acceptance and Verification of Maintenance "In-Place" Hot Mix Asphalt (SOP 3-3)

Purpose: The purpose of this document is to establish a material acceptance procedure for in-place maintenance hot mix asphalt.

Discussion: Hot mix asphalt that is placed using in-place maintenance funds and procedures must be formally accepted by TDOT in accordance with the procedure herein. In-place is considered to be hot mix asphalt that is Contractor produced, and either placed and compacted by the Contractor or TDOT maintenance forces

Procedure: All mixtures shall have an approved job mix formula (JMF) in accordance with TDOT Specifications, which may have been previously approved on other state projects during the calendar year, before any work is done.

All plant produced mixtures shall be produced and placed in accordance with Sections 307, 407, 411, and 903 of the TDOT Specifications.

I. PLANT PRODUCED HOT MIX ASPHALT: LAB TESTS Requirements:

All plant testing shall be completed by TDOT certified plant personnel only and in a TDOT qualified laboratory.

All producer samples shall be split with one half retained for TDOT random verification testing as needed.

A) For work orders/jobs greater than 1000 tons per mixture typef or Non-Interstate routes or more than 500 tons per mixture type for Interstate routes the following is required:

1) The producer shall have an approved JMF for the specified mixture(s)
2) The producer shall conduct Asphalt Cement (AC) content & gradation in accordance with TDOT Specifications/ Supplemental Specifications at the frequency of:

One test 1st- 500 Tons then an additional test every 1000 Tons afterwards per day

For production rates less than 500 tons per day, tests may be performed to represent accumulated daily totals not to exceed 1000 tons or one test per week, whichever occurs first. Production rates greater than 500 tons will require daily testing.

3) The producer shall conduct mixture volumetric testing for each 1000 tons, not to exceed one per day in accordance with section 407.03 of the TDOT specifications (including maximum theoretical gravity, voids in total mix, dust to asphalt ratio, and voids in mineral aggregate). The maximum theoretical gravity representing the mixture placed will be used to determine in-place densities.

B) Small Quantities- for work orders/ jobs equal to or less than 1000 tons per mixture type for Non-Interstate routes, or less than 500 tons for Interstate routes.

1) The producer shall have an approved JMF for the specified mixture(s)
2) Certification of compliance from the Producer stating all mixtures were produced and placed (if applicable) in full accordance with the TDOT specifications and this procedure.

For all mixtures produced, the Producer shall submit Daily reports on TDOT approved forms (DT-0267 and DT-1399) to theTDOT Maintenance Supervisor or TDOT project representative for each day's production. An asphalt Material Certification (DT-0293PG) shall be submitted to represent the asphalt material in the mixture.

The mixtures shall be produced within the allowable tolerances specified in TABLE 1. Any mixture placed that is out of compliance as documented by the Contractors test resultsis not acceptable.

TEST (Extraction or Corrected Burn off, or belt sample if applicable)	ALLOWABLE DEVIATION FROM APPROVED JMF
Aggregate Gradation- Sieve sizes	
- 3/8" and larger	± 7.5%
- # 4, # 8, # 30, # 50	± 5.5%
- # 100 and # 200	± 2.2%
Asphalt Cement Content	± 0.5%

TABLE 1- Allowable Production Deviations

TDOT, at any time, may test the split samples retained, or independently sample plant produced mixture for verification testing to compare the test results provided by the Contractor. If TDOT verification results and Contractor Acceptance results differ by more than the values identified in TABLE 2, production shall cease until the cause is

determined. Verification test results that indicate inferior mixture was produced will be used to reject the material. Inferior mixtures are those that exceed the limits in Table 2.

TEST (Extraction or Corrected Burn off, or belt sample if applicable)	Allowable Deviation between CONTRACTOR and TDOT VERIFICATION Test results	Maximum allowable Deviation of VERIFICATION test results from JMF to determine Inferior Mixtures
- 3/8" and larger	± 5 %	± 10 %
- # 4, # 8, # 30, and # 50	± 3 %	± 7 %
- # 100 and # 200	± 3 %	± 5 %
Asphalt Content	± 0.4 %	± 0.7 %

TABLE 2- Allowable Verification Test Variation

II. ROADWAY REQUIREMENTS-

Unevenness of texture, segregation (including end-of-load segregation), tearing or shoving of the bituminous mixture that occurs during the paving operation shall be reason to stop the paving until the condition is corrected. Skim patches and dragging of the aggregate shall be avoided.

Mix Placed By Maintenance Forces- The Floating Maintenance Supervisor should coordinate with the Regional Materials & Test Supervisor or the Region Construction Supervisor to establish roller patterns to achieve desired densities.

Mix Placed By Contractor –

A) For work orders/ jobs with more than 1000 tons per mixture type for Non-Interstate routes, or more than 500 tons for Interstate routes the following is required:

1) Density Requirements – The Contractor shall provide a sufficient number of rollers and a roller pattern to achieve the densities specified below. If desired, the contractor may request assistance from TDOT to aid in the development of establishing roller patterns, however the Contractor retains all responsibility to achieve the requirements below.

a) Traffic Lanes and shoulders: Where the ADT >1000, and paving lengths are $\geq$ 1000 feet, all D, B-M, B-M2, C, C-W, E, and A mixes, shall have an average density $\geq$ 88%, with no individual test < 85%.

Any mixtures placed in travel lanes on the Interstate shall have an average density $\geq$ 90% and no individual test < 88%.

Where the ADT ≤ 1000, paving lengths are < 1000 feet, or at turnouts/crossovers, there will be no testing requirements, however the mixture shall be compacted to the approval of the TDOT Maintenance Supervisor or TDOT Project Representative.

b) No Density Requirements for: C-S, AS, and ACRL mixes, however these mixes shall be compacted to the satisfaction of the TDOT Maintenance Supervisor or Project Representative.

2) Testing Density for Acceptance- Density testing will be achieved by obtaining & averaging the test results of 5 randomly selected cores.

Cores shall be taken by the contractor at locations directed by the TDOT Maintenance Supervisor or Project Representative and delivered to TDOT for testing. Cores shall be taken to represent an accumulated total of 10,000 LF (per paver width of paving) (1 core for approximately 2000 LF). Cores shall only be taken in sections where densities requirements are needed as stated above.

When the paving length, or accumulated length, is less than 10,000 LF, five (5) randomly selected cores shall be taken to represent the in place density.

Sections represented by densities not meeting the specification noted above will not be acceptable.

3) Surface Requirements- Straight Edge (parallel to centerline)

a) Surface courses – with a 12' straightedge. The surface shall not deviate more than ¼".
b) Base Courses – Shall not deviate more than 3/8".

The Contractor shall be required to repair all straightedge deviations as approved by the Maintenance Supervisor.

B) Small Quantities- for work orders/ jobs equal to or less than 1000 tons for Non-Interstate routes, or less than 500 tons for Interstate routes.

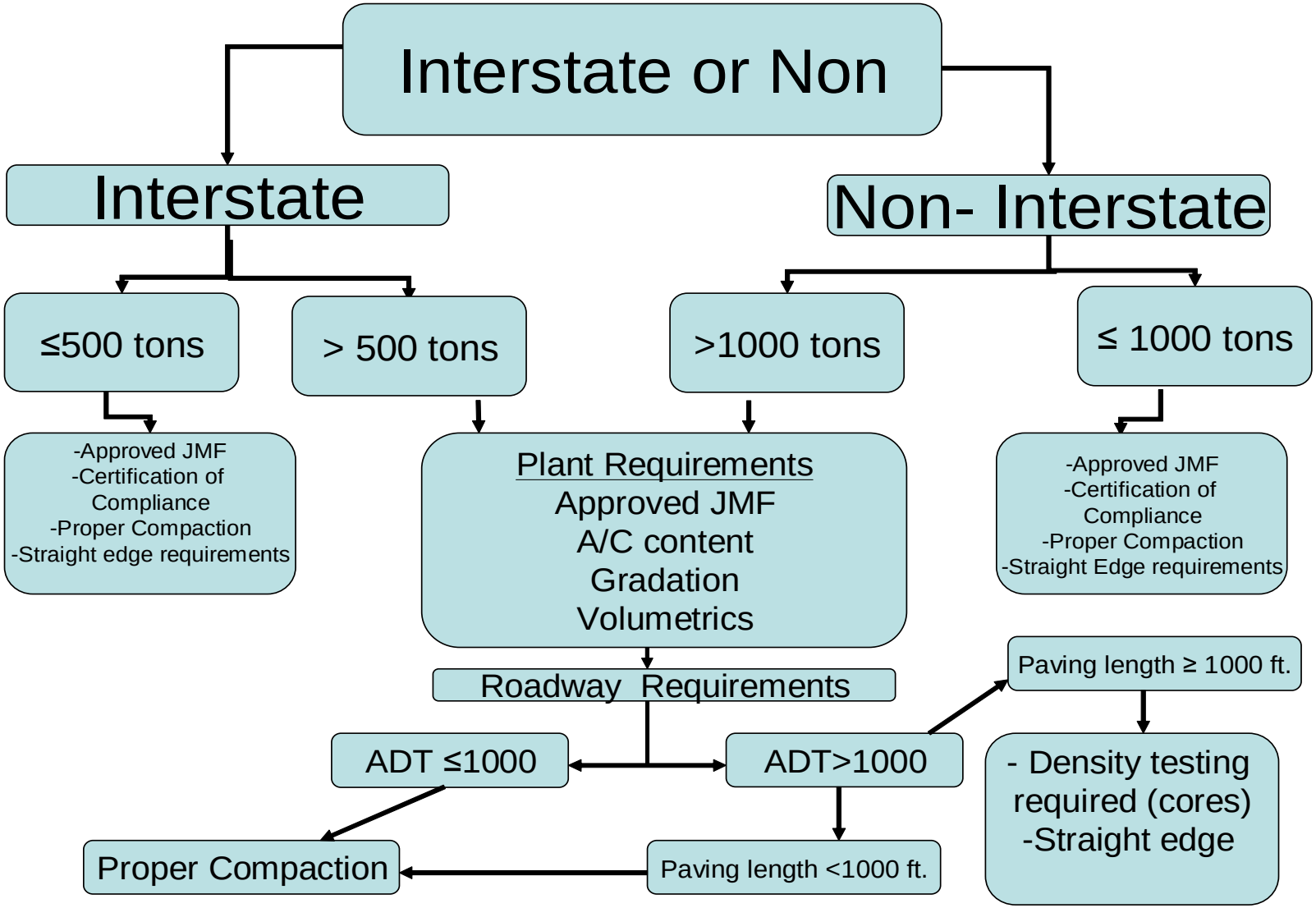
1) Density Requirements- the Contractor shall provide a sufficient number of rollers and a roller pattern to achieve the necessary compaction needed for adequate performance. The TDOT Maintenance Supervisor or Project Representative must approve the compaction processes before work begins.

2) Surface Requirements- Straight Edge (parallel to centerline)

a) Surface courses – with a 12’ straightedge. The surface shall not deviate more than ¼”.
b) Base Courses – Shall not deviate more than 3/8”.

The Contractor shall be required to repair all straightedge deviations as approved by the TDOT Maintenance Supervisor or Project Representative.

Rev. March 4, 2005- At the request of the Dept. of F&A, editorial changes 1) to the paragraph above Table 1, removed “and will not be paid for”, 2) in Section II, A,1),a) 3rd paragraph, changed “satisfaction” to “approval”, 3) in Section II,A,2) 2nd paragraph, replaced “were” with “where”, and in the 4th paragraph changed “paid for” to “acceptable”, and removed section 4) Rideability in Section II, A.


Interstate or Non
Interstate
Non- Interstate
≤500 tons
> 500 tons
>1000 tons
≤ 1000 tons
-Approved JMF
-Certification of Compliance
-Proper Compaction
-Straight edge requirements
Plant Requirements
Approved JMF
A/C content
Gradation
Volumetrics
-Approved JMF
-Certification of Compliance
-Proper Compaction
-Straight Edge requirements
Roadway Requirements
Paving length ≥ 1000 ft.
ADT ≤1000
ADT>1000
- Density testing required (cores)
-Straight edge
Proper Compaction
Paving length <1000 ft.